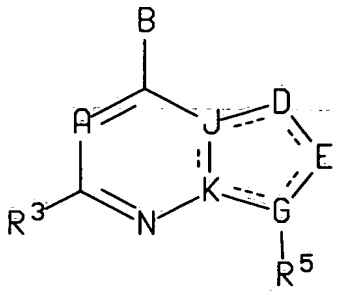
CLAIMS

1. A compound of the formula



I

or a pharmaceutically acceptable salt thereof, wherein

the dashed lines represent optional double bonds;

A is nitrogen or $CR^7$;

B is $-NR^1R^2$, $-CR^1R^2R^{10}$ $-C(=CR^2R^{11})R^1$, $-NHCR^1R^2R^{10}$, $-OCR^1R^2R^{10}$, $-SCR^1R^2R^{10}$, $-CR^2R^{10}NHR^1$, $-CR^2R^{10}OR^1$, $-CR^2R^{10}SR^1$ or $-COR^2$;

J and K are each independently nitrogen or carbon and both J and K are not nitrogens ;

D and E are each selected, independently, from nitrogen, $CR^4$, C=O, C=S, sulfur, oxygen, $CR^4R^6$ and $NR^8$ ;

G is nitrogen or carbon;

the ring containing D, E, G, K, and J in formula I may be a saturated or unsaturated 5-membered ring and may optionally contain one or two double bonds and may optionally contain from one to three heteroatoms in the ring and may optionally have one or two C=O or C=S groups;

$R^1$ is $C_1$-$C_6$ alkyl optionally substituted with one or two substituents independently selected from hydroxy, fluoro, chloro, bromo, iodo, -O-($C_1$-$C_4$ alkyl), $CF_3$, -C(=O)O-($C_1$-$C_4$alkyl), -OC(=O)($C_1$-$C_4$ alkyl), -OC(=O)N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -NHCO($C_1$-$C_4$ alkyl), -COOH, -COO($C_1$-$C_4$ alkyl), -CONH($C_1$-$C_4$ alkyl), -CON($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -S($C_1$-$C_4$ alkyl), -CN, $-NO_2$, -SO($C_1$-$C_4$ alkyl), $-SO_2$($C_1$-$C_4$ alkyl), $-SO_2$NH($C_1$-$C_4$ alkyl) and $-SO_2$N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), wherein each of the $C_1$-$C_4$ alkyl groups in the foregoing $R^1$ groups may optionally contain one or two double or triple bonds;

$R^2$ is $C_1$-$C_{12}$ alkyl which may optionally contain from one to three double or triple bonds, aryl or ($C_1$-$C_4$ alkylene)aryl, wherein said aryl and the aryl moiety of said ($C_1$-$C_4$ alkylene)aryl is selected from phenyl, naphthyl, thienyl, benzothienyl, pyridyl, quinolyl, pyrazinyl, pyrimidinyl, imidazolyl, furanyl, benzofuranyl, benzothiazolyl, isothiazolyl, pyrazolyl, pyrrolyl, indolyl, pyrrolopyridyl, oxazolyl and benzoxazolyl; $C_3$-$C_8$ cycloalkyl or ($C_1$-$C_6$ alkylene)($C_3$-$C_8$ cycloalkyl), wherein one or two of the carbon atoms of said cycloalkyl and the 5 to 8 membered cycloalkyl moieties of said ($C_1$-$C_6$ alkylene)($C_3$-$C_8$ cycloalkyl) may optionally and independently be replaced by an oxygen or sulfur atom or by $NZ^2$ wherein $Z^2$ is selected from hydrogen, $C_1$-$C_4$

alkyl, benzyl and $C_1$-$C_4$ alkanoyl, and wherein each of the foregoing $R^2$ groups may optionally be substituted with from one to three substituents independently selected from chloro, fluoro, hydroxy and $C_1$-$C_4$ alkyl, or with one substituent selected from bromo, iodo, $C_1$-$C_6$ alkoxy, -OC(=O)($C_1$-$C_6$ alkyl), -OC(=O)N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -S($C_1$-$C_6$ alkyl), amino, -NH($C_1$-$C_2$ alkyl), -N($C_1$-$C_2$ alkyl)($C_1$-$C_4$ alkyl), -N($C_1$-$C_4$ alkyl)-CO-($C_1$-$C_4$ alkyl), -NHCO($C_1$-$C_4$ alkyl), -COOH, -COO($C_1$-$C_4$ alkyl), -CONH($C_1$-$C_4$ alkyl), -CON($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -SH, -CN, -$NO_2$, -SO($C_1$-$C_4$ alkyl), -$SO_2$($C_1$-$C_4$ alkyl), -$SO_2$NH($C_1$-$C_4$ alkyl) and -$SO_2$N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl);

-$NR^1R^2$ or $CR^1R^2R^{10}$ may form a saturated 3 to 8 membered carbocyclic ring which may optionally contain from one to three double bonds and wherein one or two of the ring carbon atoms of such 5 to 8 membered rings may optionally and independently be replaced by an oxygen or sulfur atom or by $NZ^3$ wherein $Z^3$ is hydrogen, $C_1$-$C_4$ alkyl, benzyl or $C_1$-$C_4$ alkanoyl;

$R^3$ is hydrogen, $C_1$-$C_4$ alkyl, -O($C_1$-$C_4$ alkyl), chloro, fluoro, bromo, iodo, ($C_1$-$C_2$ alkylene)-O-($C_1$-$C_2$ alkyl), ($C_1$-$C_2$ alkylene)-OH, or -S($C_1$-$C_4$ alkyl);

each $R^4$ is, independently, hydrogen, ($C_1$-$C_6$ alkyl), fluoro, chloro, bromo, iodo, hydroxy, cyano, amino, ($C_1$-$C_2$ alkylene)-OH, $CF_3$, $CH_2SCH_3$, nitro, -O($C_1$-$C_4$ alkyl), -N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -S($C_1$-$C_4$ alkyl), -CO($C_1$-$C_4$ alkyl), -C(=O)H or -C(=O)O($C_1$-$C_4$alkyl);

$R^6$ is hydrogen, methyl or ethyl;

$R^8$ is hydrogen or $C_1$-$C_4$ alkyl;

$R^5$ is phenyl, pyridyl, pyrazinyl, pyrimidyl, pyridazinyl and wherein each of the foregoing $R^5$ groups is substituted with from one to four substituents $R^{13}$ wherein one to three of said substituents may be selected, independently, from fluoro, chloro, $C_1$-$C_6$ alkyl and -O($C_1$-$C_6$ alkyl) and one of said substituents may be selected from bromo, iodo, formyl, OH, ($C_1$-$C_4$ alkylene)-OH, ($C_1$-$C_4$alkylene)-O-($C_1$-$C_2$ alkyl), -CN, -$CF_3$, -$NO_2$, -$NH_2$, -NH($C_1$-$C_4$ alkyl), -N($C_1$-$C_2$ alkyl)($C_1$-$C_6$ alkyl), -OCO($C_1$-$C_4$ alkyl), ($C_1$-$C_4$ alkylene)-O-($C_1$-$C_4$ alkyl), -S($C_1$-$C_6$ alkyl), ($C_1$-$C_4$ alkylene)-S-($C_1$-$C_4$ alkyl), -C(=O)O($C_1$-$C_4$ alkyl), -C(=O)($C_1$-$C_4$ alkyl), -COOH, -$SO_2$NH($C_1$-$C_4$ alkyl), -$SO_2$N($C_1$-$C_2$ alkyl)($C_1$-$C_4$ alkyl), -$SO_2NH_2$, -NH$SO_2$($C_1$-$C_4$ alkyl), -S($C_1$-$C_6$ alkyl) and -$SO_2$($C_1$-$C_6$ alkyl), and wherein each of the $C_1$-$C_4$ alkyl and $C_1$-$C_6$ alkyl moieties in the foregoing $R^5$ groups may optionally have one or two double bonds;

$R^7$ is hydrogen, $C_1$-$C_4$ alkyl, halo (e.g., chloro, fluoro, iodo or bromo), hydroxy, -O($C_1$-$C_4$ alkyl), -C(=O)($C_1$-$C_4$ alkyl), -C(=O)O($C_1$-$C_4$ alkyl), -$OCF_3$, -$CF_3$, -$CH_2OH$ or -$CH_2$O($C_1$-$C_2$ alkyl);

$R^{10}$ is hydrogen, hydroxy, methoxy or fluoro;

$R^{11}$ is hydrogen or $C_1$-$C_4$ alkyl; and

with the proviso that: a) when both J and K are carbons and D is $CR^4$ and E is nitrogen, then G can not be nitrogen; (b) when both J and K are carbons and D and G are nitrogens, then E can not be $CR^4$ or C=O or C=S; (c) when both J and K are carbons and D and E are carbons,

then G can not be nitrogen; (d) when G is carbon, it must be double banded to E; and (e) in the ring containing J, K, D, E and G, there can not be two double bonds adjacent to each other;

and the pharmaceutically acceptable salts of such compounds.

2. Compounds according to claim 1 wherein B is $-NR^1R^2$, $-NHCHR^1R^2$, $-OCHR^1R^2$ and $R^1$ is $C_1$-$C_6$ alkyl, which may optionally be substituted with one fluoro, or $C_1$-$C_4$ alkoxy group and which may optionally contain one double or triple bond; and $R^2$ is $C_1$-$C_4$ alkyl or ($C_1$-$C_2$ alkyl)-CO-($C_1$-$C_2$ alkyl) which may optionally contain one double or triple bond.

3. Compounds according to claim 1, wherein B is $-CHR^1R^2$, $-NR^1R^2$, $-NHCHR^1R^2$, $-OCHR^1R^2$, $-SCHR^1R^2$; and $R^1$ is $C_1$-$C_6$ alkyl, which may optionally be substituted with one hydroxy, fluoro, $CF_3$, cyclopropyl or $C_1$-$C_4$ alkoxy group and which may optionally contain one double or triple bond; and $R^2$ is benzyl or $C_1$-$C_6$ alkyl, which may optionally contain one double or triple bond, wherein said $C_1$-$C_6$ alkyl and the phenyl moiety of said benzyl may optionally be substituted with one fluoro, hydroxy, $CF_3$, cyclopropyl, $C_1$-$C_2$ alkyl, $C_1$-$C_2$ alkoxy or chloro group.

4. Compounds according to claim 1 wherein $R^3$ is methyl.

5. Compounds according to claim 1 wherein $R^4$, $R^6$, $R^8$, $R^9$, and $R^{12}$ are hydrogen or methyl.

6. Compounds according to claim 1 wherein $R^5$ is di- or tri-substituted phenyl in which the two or three substitutents are independently selected from $C_1$-$C_4$ alkyl, O-($C_1$-$C_4$ alkyl), ($C_1$-$C_4$ alkylene)-O-($C_1$-$C_4$alkyl), $CF_3$, $OCF_3$, CHO, ($C_1$-$C_4$alkylene)-OH, cyano, chloro, fluoro, bromo and iodo, wherein each of the forgoing ($C_1$-$C_4$) alkyl groups may optionally contain one double or triple bond.

7. Compounds 1 wherein $R^3$ is methyl, ethyl, chloro or methoxy; and each of $R^4$, $R^6$, $R^8$, $R^9$, and $R^{12}$ is, independently, hydrogen, methyl or ethyl.

8. Compounds wherein $R^5$ is di- or tri-substituted pyridyl, or pyrimidyl in which the two or three substitutents are independently selected from $C_1$-$C_4$ alkyl, O-($C_1$-$C_4$ alkyl), ($C_1$-$C_4$ alkylene)-O-($C_1$-$C_4$ alkyl), $CF_3$, $OCF_3$, CHO, ($C_1$-$C_4$ alkylene)-OH, cyano, chloro, fluoro, bromo and iodo, wherein each of the forgoing ($C_1$-$C_4$) alkyl groups may optionally contain one double or triple bond.

9. Compounds according to claim 1 wherein A is N, CH or $CCH_3$.

10. Compounds according to claim 1 wherein A is CH, J and K are carbon and D, E, and G are nitrogen.

11. Compounds according to claim 1 wherein J and D are nitrogen, and K and G are carbon, and E is CH, $CCH_3$ or $CC_2H_5$.

12. Compounds according to claim 1 wherein J and K are carbon, and D--EG is O-$C(CH_3)$=C, O-CH=C, S-$C(CH_3)$=C, S-CH=C, N($CH_3$)-$C(CH_3)$=C, NHC($CH_3$)=C, NHC($CH_3CH_2$)=C, N($CH_3$)-CH=C, O-N=C, S-N=C, N($CH_3$)-N=C, O-$CH_2$N or S-$CH_2$N.

13. A compound according to claim 1 wherein B is $-CHR^1R^2$, $-NCHR^1R^2$ or $-OCHR^1R^2$, and the $CHR^1R^2$ group of B is a cyclopentane ring, a tetrahydrofuran ring or a tetrahydrothienyl ring.

14. A compound according to claim 1 wherein the $NR^1R^2$ group of B is a five membered saturated or unsaturated heterocyclic ring.

15. A compound according to claim 14 wherein the $NR^1R^2$ is a pyrrolo ring, a pyrrolidino ring, a thiazolidino ring or a morpholino ring.

16. A pharmaceutical composition for the treatment, prevention or inhibition of (a) a disorder the treatment of which can be effected or facilitated by antagonizing CRF, including but not limited to disorders induced or facilitated by CRF, or (b) a disorder selected from inflammatory disorders such as rheumatoid arthritis and osteoarthritis, pain, asthma, psoriasis and allergies; generalized anxiety disorder; panic; phobias; obsessive-compulsive disorder; post-traumatic stress disorder; sleep disorders induced by stress; pain perception such as fibromyalgia; mood disorders such as depression, including major depression, single episode depression, recurrent, . depression, child abuse induced depression, mood disorders associated with premenstrual syndrome, and postpartum depression; dysthemia; bipolar disorders; cyclothymia; chronic fatigue syndrome; stress-induced headache; cancer; irritable bowel syndrome, Crohn's disease; spastic colon; post operative ileus; ulcer;diarrhea; stress-induced fever; human immunodeficiency virus (HIV) infections; neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease and Huntington's disease; gastrointestinal diseases; eating disorders such as anorexia and bulimia nervosa; hemorrhagic stress; chemical dependencies and addictions (e.g., dependencies on alcohol, cocaine, heroin, benzodiazepines, or other drugs); drug and alcohol withdrawal symptoms; stress-induced psychotic episodes; euthyroid sick syndrome; syndrome of inappropriate antidiarrhetic hormone (ADH); obesity; infertility; head traumas; spinal cord trauma; ischemic neuronal damage (e.g., cerebral ischemia such as cerebral hippocampal ischemia); excitotoxic neuronal damage; epilepsy; stroke; immune dysfunctions including stress induced immune dysfunctions (e.g., porcine stress syndrome, bovine shipping fever, equine paroxysmal fibrillation, and dysfunctions induced by confinement in chickens, sheering stress in sheep or human-animal interaction related stress in dogs); muscular spasms; urinary incontinence; senile dementia of the Alzheimer's type; multiinfarct dementia; amyotrophic lateral sclerosis; hypertension; tachycardia; congestive heart failure; osteoporosis; premature birth; and hypoglycemia in a mammal, comprising an amount of a compound according to claim 1 that is effective in the treatment of such disorder, and a pharmaceutically acceptable carrier.

17. A method for the treatment, prevention or inhibition of (a) a disorder the treatment of which can be effected or facilitated by antagonizing CRF, including but not limited to disorders induced or facilitated by CRF, or (b) a disorder selected from inflammatory

disorders such as rheumatoid arthritis and osteoarthritis, pain, asthma, psoriasis and allergies; generalized anxiety disorder; panic; phobias; obsessive-compulsive disorder; post-traumatic stress disorder; sleep disorders induced by stress; pain perception such as fibromyalgia; mood disorders such as depression, including major depression, single episode depression, recurrent premenstrual syndrome, and postpartum depression; dysthemia; bipolar disorders; cyclothymia; chronic fatigue syndrome; stress-induced headache; cancer; irritable bowel syndrome, Crohn's disease; spastic colon; post operative ileus; ulcer; diarrhea; stress-induced fever; human immunodeficiency virus (HIV) infections; neurodegenerative diseases such as Alzheimer's disease, Parkinson's disease and Huntington's disease; gastrointestinal diseases; eating disorders such as anorexia and bulimia nervosa; hemorrhagic stress; chemical dependencies and addictions (e.g., dependencies on alcohol, cocaine, heroin, benzodiazepines, or other drugs); drug and alcohol withdrawal symptoms; stress-induced psychotic episodes; euthyroid sick syndrome; syndrome of inappropriate antidiarrhetic hormone (ADH); obesity; infertility; head traumas; spinal cord trauma; ischemic neuronal damage (e.g., cerebral ischemia such as cerebral hippocampal ischemia); excitotoxic neuronal damage; epilepsy; stroke; immune dysfunctions including stress induced immune dysfunctions (e.g., porcine stress syndrome, bovine shipping fever, equine paroxysmal fibrillation, and dysfunctions induced by confinement in chickens, sheering stress in sheep or human-animal interaction related stress in dogs); muscular spasms; urinary incontinence; senile dementia of the Alzheimer's type; multiinfarct dementia; amyotrophic lateral sclerosis; hypertension; tachycardia; congestive heart failure; osteoporosis; premature birth; and hypoglycemia in a mammal, comprising administering to a subject in need of said treatment an amount of a compound according to claim 1, that is effective in treating such disorder.

18. A method of treating or preventing a disorder or condition, the treatment or prevention of which can be effected or facilitated by inhibiting CRH binding protein in a mammal, comprising administering to said mammal a CRH binding protein inhibiting amount of a compound according to claim 1.

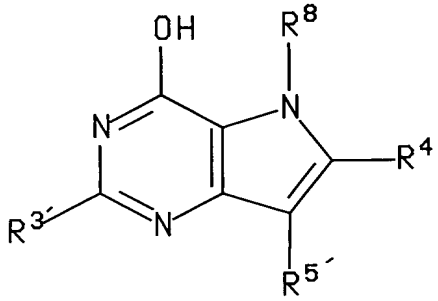
19. A pharmaceutical composition for treating or preventing a disorder or condition, the treatment or prevention of which can be effected or facilitated by inhibiting CRH binding protein in a mammal, comprising a CRH binding protein inhibiting amount of a compound according to claim 1 and a pharmaceutically acceptable carrier.

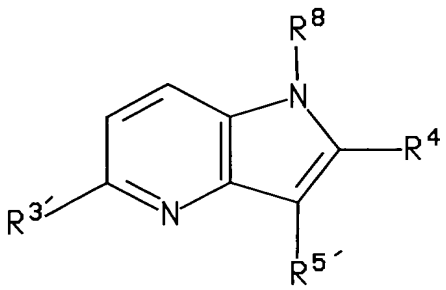
20. A compound according to claim 11 or 12 wherein A is N or CH, $R^3$ is methyl and each $R^4$, $R^6$, $R^8$, $R^9$ and $R^{12}$ is, independently, hydrogen or methyl.

21. A compound according to claim 20, wherein $R^5$ is di- or tri-substituted phenyl, wherein the two or three substitutents are independently selected from $C_1$-$C_4$ alkyl, O-($C_1$-$C_4$ alkyl), ($C_1$-$C_4$ alkylene)-O-($C_1$-$C_4$alkyl), $CF_3$, $OCF_3$, CHO, ($C_1$-$C_4$alkylene)-OH, cyano, chloro,

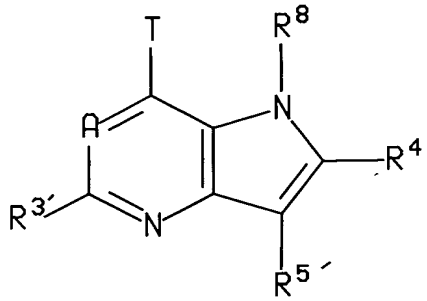
fluoro, bromo and iodo, wherein each of the forgoing ($C_1$-$C_4$) alkyl groups may optionally contain one double or triple bond.

22. A compound of the formula





or



wherein $R^3N$ is $C_1$-$C_4$ alkyl, $R^7N$ is hydrogen, methyl, chloro, bromo, -COOH or -COO($C_1$-$C_4$ alkyl), T is chloro, bromo, iodo or triflate, $R^8$ is hydrogen or $C_1$-$C_4$ alkyl and $R^4$ is hydrogen, ($C_1$-$C_6$ alkyl), fluoro, chloro, bromo, iodo, hydroxy, cyano, amino, ($C_1$-$C_2$ alkylene)-OH, $CF_3$, $CH_2SCH_3$, nitro, -O($C_1$-$C_4$ alkyl), -N($C_1$-$C_4$ alkyl)($C_1$-$C_2$ alkyl), -S($C_1$-$C_4$ alkyl), -CO($C_1$-$C_4$ alkyl), -C(=O)H or -C(=O)O($C_1$-$C_4$alkyl);

23. A compound according to claim 1 wherein said compound is:

7-(1-ethyl-propoxy)-5-methyl-3-(2,4,6-trimethyl-phenyl)-pyrazolo[1,5-a]pyrimidine;

[2,5-Dimethyl-3-(2,4,6-trimethyl-phenyl)-pyrazolo[1,5-a]pyrimidin-7-yl]-(1-ethyl-propyl)-amine;

(1-Ethyl-propyl)-[5-methyl-3-(2,4,6-trimethyl-phenyl)-pyrazolo[1,5-a]pyrimidin-7-yl]-amine;

7-(1-Ethyl-propoxy)-2,5-dimethyl-3-(2,4,6-trimethyl-phenyl)-pyrazolo[1,5-a]pyrimidine;

[2,5-Dimethyl-3-(2,4,6-trimethyl-phenyl)-pyrazolo[1,5-a]pyrimidin-7-yl]-ethyl-propyl-amine;

[6-Bromo-5-bromomethyl-3-(2,4,6-trimethyl-phenyl)-3H-[1,2,3]triazolo[4,5-b]pyridin-7-yl]-(1-ethyl-propyl)-amine;

(1-Ethyl-propyl)-[5-methyl-3-(2,4,6-trimethyl-phenyl)-3H-[1,2,3]triazolo[4,5-b]pyridin-7-yl]-amine;

[6-Bromo-5-methyl-3-(2,4,6-trimethyl-phenyl)-3H-[1,2,3]triazolo[4,5-b]pyridin-7-yl]-(1-ethyl-propyl)-methyl-amine;

7-(1-Ethyl-propoxy)-5-methyl-3-(2,4,6-trimethyl-phenyl)-3H-[1,2,3]triazolo[4,5-b]pyridine;

4-(1-Ethyl-propoxy)-2,5-dimethyl-7-(2,4,6-trimethyl-phenyl)-5H-pyrrolo[3,2-d]pyr imidine;

(±)-2,5-Dimethyl-4-(tetrahydro-furan-3-yloxy)-7-(2,4,6-trimethyl-phenyl)-5H-pyrrolo-[3,2-d]pyrimidine;

2,5-Dimethyl-4-(S)-(tetrahydro-furan-3-yloxy)-7-(2,4,6-trimethyl-phenyl)-5H-pyrrolo-[3,2-d]pyrimidine;

2,5-Dimethyl-4-(1-propyl-butoxy)-7-(2,4,6-trimethyl-phenyl)-5H-pyrrolo[3,2-d]pyrimidine;

or

4-sec-Butylsulfanyl-2,5-dimethyl-7-(2,4,6-trimethyl-phenyl)-5H-pyrrolo[3,2-d]pyrimidine;

or a pharmaceutically acceptable salt of such compound.